



THE COLLEGES OF MEDICINE OF SOUTH AFRICA

Incorporated Association not for gain
Reg No 1955/000003/08Examination for the Subspeciality Certificate in Medical Oncology of the
College of Paediatricians of South Africa

1 March 2018

Paper 1

(3 hours)

All questions are to be answered. Each question to be answered in a separate book (or books if more than one is required for the one answer)

1 A 13-year-old, previously well boy has been referred to you by a general paediatrician. The boy presented with a history of painful swelling of the left upper limb. Initially the swelling was painless, but increased in severity after the boy sustained a sport-related injury. The paediatrician has excluded non-malignant causes.

a) What is your differential diagnosis? (5)

A biopsy of the mass shows osteoid production.

b) What is the classification of osteogenic sarcomas? (10)

c) What are the risk factors for osteogenic sarcomas? (10)

d) What genetic syndromes are associated with osteogenic sarcomas? (10)

e) Write notes on the biological behaviour of osteogenic sarcomas. (15)

f) Describe the radiological findings in a patient with osteogenic sarcoma. (15)

g) List the criteria for pulmonary metastatic disease. (10)

h) Write notes on the indications for limb salvage therapy versus amputation surgery. (10)

i) Discuss the role of neoadjuvant and adjuvant chemotherapy for the treatment of osteogenic sarcoma. (15)

[100]

2 A 12-year-old boy is referred to you by a rheumatologist, who is concerned that the patient may have an underlying malignancy. The boy presents with a 3 month history of weight loss, low grade fevers and pain in his ankles and knees. There is no history of skin rashes or travel. He was very competitive in sport, but is now in too much pain to walk. His pain has not responded to non-steroidal anti-inflammatory drugs. His rheumatological work-up (ANF, Anti-DS DNA and RF) was negative. His ESR is 105mm/hr. On examination there are no significant findings other than arthralgia in his knees and ankles.

His FBC shows:

WCC $3.2 \times 10^9/L$ Haemoglobin 11g/dL Platelets $125 \times 10^9/L$

The peripheral blood smear shows occasional atypical lymphocytes.

a) What is the most likely diagnosis? (5)

b) How would you investigate this patient? (15)

c) Clinically and with given information how would you stratify this patient? (15)

d) What other important information would you need to stratify this patient? (20)

e) After you have commenced treatment, your pathology report comes back with an addendum: Karyotype t (9;22) positive. How will this affect your treatment strategy? Explain your considerations in choice of treatment strategy. (30)

PTO/Page 2 Question 2f)...

- f) Discuss the rationale of the choice of tyrosine kinase inhibitor for this patient. (15)
[100]

3 BK is a 12-year-old male with T cell Acute Lymphoblastic leukaemia. On day 4 of induction chemotherapy he is noted to have 3+ glucose on urine dipstix and a visidex reveals a glucose of 20.

- a) What are the possible causes of the hyperglycaemia? How would you manage this problem? (25)

BK has now neared the end of induction chemotherapy and is doing very well. Your team is struggling to insert drips. They ask you if BK can have a venous access device inserted.

- b) Which device would you recommend be inserted in BK and why? (10)
c) Describe the guidelines you would institute for venous access device care in your unit. (15)

BK is now in the consolidation phase of his treatment. He develops generalised tonic clonic convulsions.

- d) Write notes on possible causes of seizures in this patient and how you would treat them. (25)

BK has done well and is now nearing the end of his delayed intensification. He complains of severe abdominal pain.

- e) Discuss the possible causes of BK's abdominal pain and how you would manage each cause. (25)

[100]

4 A 6-year-old boy presents with urinary retention. He also complains of abdominal pain and distension, as well as constipation. On examination, there is a large pelvic mass palpable, as well as a 2cm inguinal node on the right. An ultrasound of the abdomen shows a large polypoid mass most likely originating from the bladder or prostate, with urinary obstruction and resultant severe bilateral hydronephrosis. His blood tests show the following:

Na 134mmol/L K 5.7mmol/L urea 12.2mmol/L creatinine 125µmol/L
WCC $7.6 \times 10^9/L$ Hb 6.2g/dL MCV 79fl Platelets $17 \times 10^9/L$

- a) What is the differential diagnosis? (10)
b) A biopsy of the pelvic mass is performed and the spindle-shaped to oval tumour cells within a myxoid background, stain positive for desmin, myogenin and SMA. What is the diagnosis? Describe the staging process for this tumour. (25)
c) Discuss the epidemiology. (10)
d) How would you manage the complications that are evident from the case description above? (25)
e) Discuss the treatment modalities for this malignancy and how you would aim to preserve the bladder. (20)
f) After the first month of treatment, the mother tells you that she wants to start giving the child cannabis, as she has read that it can cure cancer. What would your advice be? (10)

[100]



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2 March 2018

Paper 2

(3 hours)

All questions are to be answered. Each question to be answered in a separate book (or books if more than one is required for the one answer)

- 1 Write short notes on
 - a) The mechanism of action of Methotrexate as an anti-cancer agent. (5)
 - b) Methotrexate toxicity. (5)

[10]
- 2 List the criteria for Juvenile Myelomonocytic Leukaemia. [10]
- 3 Write short notes on nephrogenic rests in children with Wilm's tumour. [10]
- 4 You are a paediatric oncologist at a unit with a large rural referral base. You notice that you are being referred many patients with advanced stage disease. Describe the strategies you would take to ensure earlier referral. [10]
- 5 Write short notes on para-neoplastic syndromes associated with neuroblastoma. [10]
- 6 Write short notes on CAR T cell therapy. [10]
- 7 Briefly discuss the long-term side-effects of craniospinal radiotherapy in paediatric patients. [10]
- 8 Oral Dexamethasone is a Section 21 drug in South Africa. What does this mean? Discuss the use of Dexamethasone in the treatment of Acute Lymphoblastic Leukaemia including choice of drug, side effect profile and important issues to raise in your discussion with the parents. [10]
- 9 You are treating a 14-year-old boy with advanced rhabdomyosarcoma. You decide that curative treatment is not possible anymore and continue palliative treatment. The boy starts to present repeatedly with symptomatic severe anaemia. Would you provide regular blood transfusions or not? Explain your answer using ethical principles. [10]
- 10 Write short notes on the iodine-123-meta-iodobenzylguanidine (MIBG) scan. [10]